Large specimens of this species, having the carapace as much as an inch and a half in length, are to be found at low-water on sandy flats on the shores of Port Denison.

4. MYRA AUSTRALIS, Haswell.

Myra australis, *Haswell, l. c.*, p. 50, pl. 5, fig. 3.

Common at depths of a few fathoms in Port Denison.

5. PHLYXIA LAMBRIFORMIS, Bell.

Phlyxia lambriformis, *Bell, l. c.*, p. 309, pl. 34, fig. 1.

Dredged in 20 fathoms, off Holborn Island, Queensland.

6. NURSIA GRACILIS, Bell.

Dredged in 9 fathoms, Port Denison.

7. NURSILIA DENTATA, Bell.

Nursilia dentata, *Ball, l. c.*, p. 309, pl. 34, fig. 6.

Dredged in 9 fathoms, Port Denison.

8. OREOPHORUS NODOSUS, A. Milne-Edwards.

Oreophorus nodosus, *A. Milne-Eduards, Annales de la Soc., Ent. de France.*

Found under a cluster of madrepora, Stone Island; also dredged in about 9 fathoms, Port Denison.

ON THE GEOLOGY OF YASS PLAINS, (3RD PAPER.)

BY C. JENKINS, ESQR., L.S.

It was suggested to me late yesterday that as at this meeting there would probably be present an unusual number of Geologists, it would be a suitable time to address to you a few remarks on the subject of the Silurian beds in the neighbourhood of Yass.

In the first paper that I had the honor to submit to you I endeavoured to show that the two series of beds respectively named by me the Yass and Hume beds, were unquestionably upper Silurian.

I propose now to recapitulate the arguments I then used, and add a few other remarks. You have to night the advantage of having before you specimens of some of the rocks and fossils to which I shall refer.

Whatever progress has been made in learning the Geology of any particular country, it has been done by determining in the first instance the order in which life succeeded life in that part of the world, irrespective of what results may have been arrived at in other near or far distant lands.

Such was the task I set myself, with regard to the beds about Yass. This task I believe I have in some degree accomplished, examining the strata thoroughly inch by inch from the top to the bottom of the series.

The conclusion that I have arrived at is that the fossils of these beds correspond more nearly with those of the upper Silurian of England than with those of any other age.

I arrived at this conclusion from these beds containing in many parts such an abundance of *Trilobites* of exclusively Silurian Genera, without any admixture of *Trilobites* of exclusively Lower Silurian Genera.

I concluded also that at least one portion of the series was the equivalent to the lower portion of the Upper Silurian or Llandovery beds of Britain, (taking Sir Roderick Murchison's statement as my guide) from the presence of *Trilobites* of Upper and Lower Silurian genera, the number of *Peutameri*, including especially *Peutamerus oblongus*, the encrinital stems of Lower Silurian type, and the number of *Petraia*. One *Cheirurus* is undoubtedly the *Cheirurus insignis* described by Professor Koninck, and determined by him to belong to the horizon of the Llandovery beds.

The inclusively Silurian Genera referred to above are:

Cheirurus, *Calymene.*
Spherenochus. *Acidaspis.*
Encrinurus.

Professor Koninck's determination of some of the New South Wales Fossils tends to establish these beds to be Upper Silurian. Several fossils declared by him to be Silurian, are found in the Yass and Hume beds. While those which he has described as Devonian and referred to the neighbourhood of Yass, are only to be found in the Murrumbidgee beds, which occur some 8 or 9 miles from Yass, overlying uncomformably the Yass beds.

Occurring in the midst of these Silurian fossils is found what I believe to be undoubtedly a *Calceola* and also *Atrypa desquamata.* Now both these have only been found in other Countries in Devonian strata.

When Banaude found *Goniatites,* hitherto considered Devonian, in the midst of his Silurian types, he suggested in explanation, his theory of Colonies.

This explanation was approved of by Sir R. Murchison, and considered by Professor Forbes to be highly philosophical. The presence here of Devonian forms in the midst of typical Silurian species may probably be similarly explained.

At any rate it has been specially laid down by Lyell, and is I believe an universally recognised principle, that it is in the highest organized forms that we must seek the type whereby to characterize the age.

I think therefore the evidence derived from the *Trilobites* must be considered decisive, notwithstanding the presence of these two lower organized forms, usually regarded as Devonian.

The conditions under which the Yass and Hume beds were deposited, were evidently similar to those which existed during the formation of the Silurian of other countries. There is no warranty for assuming that the deposits were formed in oceanic

depths. But there is evidence that they were laid down in shallow seas, during alternate sinking and rising of the land, sometimes in an open sea, and sometimes in salt-water lagoons, while some were evidently exposed during deposition, to the action of the sun and wind. This evidence is afforded by the nature of the rocks as well as by the mode of occurrence and condition of the fossils.

The depth required for the formation of shale, such as these beds contain, according to Dana, need not be more than a few hundred feet.

The compact Limestone and Coral conglomerates, are such as Dana describes as now forming in the Coral Islands, and would not be produced at depths exceeding 200 feet.

The grits with their ripple marks, and the bands of Limestone with sea-weed, all tell of shallow seas. The beds of unfossiliferous shale, some finely laminated, such as could only be formed in quiet water, and capable of retaining the slightest impression, together with the brackish springs flowing from them, afford evidence similar to that which eminent geologists have agreed to consider, as indicating that the beds so characterised, were deposited in salt-water lagoons only occasionally in communication with the ocean, rather than in an open sea. Dana has shown that such unfossiliferous deposits are now forming in some of the lagoons of the Coral Islands.

In the Yass beds especially, the mode of occurrence of the fossils, generally in layers, almost universally broken, worn, and sometimes so rolled as to be almost unrecognizable, show the stratum containing them was during its deposition subject to the action of the waves. Some of the fossils in the Hume beds exhibit a similar mode of occurrence, but in general in these latter beds the fossils are more evenly spread through the strata, and the perfect condition in which these are found show that they were deposited beyond the reach of tidal action.

The alternation of gritty and sandy beds with shale and limestone are sufficient evidence of the rising and falling of the land, though the period we are now considering must have been in this part one on the whole, of depression: must have been a general gain of the water upon the land. From the position of the Murrumbidgee beds further westward, this encroachment on the land must have continued long after the period of the Yass Silurian.

In conclusion I may remark that New South Wales has undoubtedly a Geological history of its own which if we are to learn, it must be from a systematic examination of the rocks in detail by Geological Survey, and not by adopting general conclusions arrived at in other countries, which seem to agree with random observations in this.

NOTES AND EXHIBITS.

Mr. Masters gave the following instance of the effect of heat in the development of insects:—He stated that on the 14th of this month, when on a visit to the garden and hothouses of the Hon. James White, at Cranbrook, he had observed a number of *Schizorrhina dorsalis* flying about, and struck by the appearance of these beetles at a season of the year at least three months earlier than their usual time; he made inquiries and found that the larvæ had been introduced in the tan used for plunging pots; the very rapid development of the insects was caused solely by the heat of the beds. The larvæ were also found to be very destructive to the plants by passing from the tan to the flowerpots by the hole in the bottom and eating the roots.

Dr. Cox exhibited fossil teeth of *Diprotodon* found between Merriwa and Cassilis, at Dunlop's Paddocks, Bow Creek, three